

## PUBLICATIONS

APL staff authored or co-authored the following unclassified technical publications that were recently published:

**Arnold BR (U. of MD), Euler AC (U. of MD), Jenkins AL, Uy OM, and Murray GM**

Progress in the development of molecularly imprinted polymer sensors, *Johns Hopkins APL Tech. Dig.* 20(2), 190–198 (1999).

**Asher MS**

Proposed improvements in precise GPS attitude determination using pre-detect data, gyro data, and redundant antennas, in *Proc. AAS/GSFC 13th Int. Symp. on Space Flight Dynamics*, 100, II, pp. 367–376 (1998).

**Ballatore P, MacLennan CG, Engebretson MJ, Candidi M, Bitterly J, Meng C-I, and Burns G**

A new southern high-latitude index, *Ann. Geophys.* 16, 1589–1598 (1998).

**Barnouin-Jha OS, Cheng AF, and Von Mehlem UI**

Aladdin: Sample return from the moons of Mars, in *Proc. IEEE Aerospace Conf.* (1999).

**Berdichevsky D (Raytheon-STX), Thejappa G (U. of MD), Fitzenreiter RJ (GSFC), Lepping RL (GSFC), Yamamoto T (ISAS), Kokubun S (STEL), McEntire RW, Williams DJ, and Lin RP (U. of CA)**

Widely spaced wave-particle observations during GEOTAIL and WIND magnetic conjunctions in the Earth's ion foreshock with near-radial interplanetary magnetic field, *J. Geophys. Res.* 104 (A1), 463–482 (Jan 1999).

**Betenbaugh TM**

Mechanical flight qualification team of the Advanced Composition Explorer Observatory, in *Proc. 20th Space Simulation Conf., The Changing Testing Paradigm* NASA/CR-1998-208598, 55–88 (Oct 1998).

**Biondo AC, Mandelberg MD, Newman FC, and Matthews C (NAWCTSD)**

Model-dependent environmental abstractions (MDEAs) of acoustic transmission loss to support synthetic force development, in *Proc. Simulation Interoperability Workshop—Spring 99* (Mar 1999).

**Bokulic RS, and Moore WV**

Near Earth Asteroid Rendezvous (NEAR) spacecraft solar conjunction experiment, *J. Spacecr. Rockets* 36(1), 87–91 (1999).

**Bythrow PF, and Oursler DA**

The detection of transient optical events at narrowband visible wavelengths, *Johns Hopkins APL Tech. Dig.* 20(2), 155–161 (1999).

**Bythrow PF, Oursler DA, Goldfinger AD, Dove RE, Crawford LJ, and Meng C-I**

Visible wavelength sensors for the rapid detection and identification of a ballistic missile launch, in *Proc. IRIS Specialty Group on Missile Defense Sensors, Environments and Algorithms* (Jan 1999).

**Cameron GE, and Kusnierkiewicz DY**

Reducing the life-cycle cost of space systems, in *49th Int. Astronautical Cong.*, IAF-98-U.1.03 (1998).

**C:son Brandt P, Barabash S, Norberg O, Lundin R, Roelof EC, and Chase CJ**

Energetic neutral atom imaging at low altitudes from the Swedish microsatellite Astrid: Images and spectral analysis, *J. Geophys. Res.* 104, 2367–2379 (1999).

**Chin DC, Srinivasan R, and Ball RE (JHU)**

Subsurface discrimination for buried plastic and metal objects, in *Proc. PIERS 1999: Progress in Electromagnetics Research Symp.* Taipei, Taiwan (22–26 Mar 1999).

**Collins MJ, Raney RK, and Livingstone CE**

On the model-based estimation of backscatter texture from SAR image texture for area-extensive scenes, *Proc. Royal Society of London, Series A* 356, 2859–2891 (8 Nov 1998).

**Dellinger WF, Salada MA, and Shapiro HS**

Application of MATLAB®/Simulink® to guidance and control flight-code design, in *Proc. 22nd Annual AAS Guidance and Control Conf.* (Feb 1999).

**Desai MI, Marsden RG, Sanderson TR, Lario D, Roelof EC, Simnett GM, Balogh A, Forsyth RJ, and Gosling JT**

Energy spectra of 50 keV to 20 MeV protons accelerated at corotating interaction regions at Ulysses, *J. Geophys. Res.* 104, 6705–6719 (1 Feb 1999).

**Devereux WS, Heins RJ, Chacos AA, Linstrom LA, Asher MS, and Duven DJ**

The TIMED GPS Navigation System (GNS), in *49th Int. Astronautical Cong.*, AF-98-U.5.02 (1998).

**Domingue DL, and Lane AL**

IUE views Europa: Temporal variations in the UV, *Geophys. Res. Lett.* 25 (1998).

**Dumont FC, Suter JJ, and Schwartz PD**

A controller area network-based telemetry and command system for small space experiments, *Johns Hopkins APL Tech. Dig.* 20(2), 214–219 (1999).

**Dunham DW**

Lunar occultation highlights for 1999, *Sky and Telescope* 97(1), 114–117 (Jan 1999).

**Dunham DW**

Planetary occultations for 1999, *Sky and Telescope* 97(2), 106–109 (Feb 1999).

**Dunham DW**

The Moon hides Aldebaran January 26–27, *Sky and Telescope* 97(2), 110–111 (Feb 1999).

**Erlandson RE, Zanetti LJ, Blomberg L, and Marklund G**

Pointing flux estimates of electromagnetic ion cyclotron and broadband waves on auroral field lines: Physics of space plasmas, in *Proc. 1998 Cambridge Symp./Workshop on Multiscale Phenomena in Space Plasmas II*, 15, T Chang and JR Jasperse, (eds.), pp. 87–90 (1998).

**Gilreath H, Driesman A, Kroshl W, White M, Cartland H, and Hunter J**

The feasibility of launching small satellites with a light gas gun, in *Proc. AIAA/USU Conf. on Small Satellites*, Technical Session 3, pp. 1–20 (1998).

**Green BD (Physical Sciences, Inc.), Galica GE (Physical Sciences, Inc.), Mulhall PA (Physical Sciences, Inc.), Uy OM, Lesho JC, Boies MT, Benson RC, Phillips TE, Silver DM, Erlandson RE, Wood BE (Sverdrup Technology, Inc.), Hall DF (The Aerospace Corp.), and Mill JD (Environmental Res. Inst. of Michigan)**

Local environment surrounding the Midcourse Space Experiment satellite during its first week, *J. Spacecr. Rockets* 35(2), 183–190 (1998).

- Haggerty DK, and Armstrong TP**  
Observations of Jovian upstream events by Ulysses, *J. Geophys. Res.* **104**, 4629–4642 (1999).
- Haggerty DK, Desai MI, Mason GM, Dwyer JR, Gold RE, Krimigis SM, Mazur JE, and Von Rosenvinge TT**  
Simultaneous observations of energetic (~150 keV) protons upstream of the Earth's bow shock at ACE and WIND, *Geophys. Res. Lett.* **26**, 169–172 (1999).
- Iannuzzelli RJ, Morgan PN (Texas A&M U.), Kluga BE, and Rockwell MM**  
Approaches to MRI gating using multiple sensors, *Johns Hopkins APL Tech. Dig.* **20**(2), 143–154 (1999).
- Jensen JR**  
Radar altimeter fate tracking: Theory and extension, *IEEE Trans. Geosci. Remote Sens.* **37**, 651–658 (Mar 1999).
- Jensen JR, and Bokulic RS**  
Accurate Doppler navigation with a simple spacecraft transceiver, in *Proc. IEEE Aerospace Conf.* (1999).
- Kane M, Williams DJ, Mauk BH, McEntire RW, and Roelof EC**  
Galileo Energetic Particles Detector measurements of hot ions in the neutral sheet region of Jupiter's magnetodisk, *Geophys. Res. Lett.* **26**(1), 5–8 (1999).
- Kauristie K, Weygand J, Pulkkinen TI, Murphree JS, and Newell PT**  
Size of the auroral oval: UV ovals and precipitation boundaries compared, *J. Geophys. Res.* **104**(A2), 2321–2331 (1 Feb 1999).
- Kim K-H, and Takahashi K**  
Statistical analysis of compressional Pc3-4 pulsations observed by AMPTE CCE at L = 2-3 in the dayside magnetosphere, *J. Geophys. Res.* **104**, 4539–4558 (1999).
- Kropotkin AP, Trubachev OO, and Lui ATY**  
Nonlinear instability of the geomagnetotail current sheet combining the features of tearing and cross-field current instabilities, *J. Geophys. Res.* **104**(A1), 371–381 (1 Jan 1999).
- Le BQ, Schwartz PD, Ling SX, Strohhahn K, Peacock K, McNally PJ, Lehtonen SJ, Gold RE, and Jenkins RE**  
A low-cost miniaturized scientific imager design with chip-on-board technology for space applications, *Johns Hopkins APL Tech. Dig.* **20**(2), 170–180 (1999).
- Lui ATY**  
Particle acceleration in disruption of the tail current sheet, *Phys. Chem. Earth* **24**, 259–267 (1999).
- Lyman MH**  
Crimson Tide: They got it all wrong, *Submarine Rev.*, 30–35 (Apr 1999).
- Marohn JA (JHU), Fainchtein R, and Smith DD (ARL)**  
An optimal magnetic tip configuration for magnetic-resonance force microscopy of microscale buried features, *Appl. Phys. Lett.* **73**(25), 3778–3780 (1998).
- Mason GM, Cohen CMS, Dwyer JR, Gold RE, Krimigis SM, Leske RL, Mazur JE, Mewaldt RA, Mobius E, Popecki M, Reames DV, Stone EC, and von Rosenvinge TT**  
Particle acceleration and sources in the November 1997 solar energetic particle events, *Geophys. Res. Lett.* **26**, 141–144 (1999).
- Newell PT, Liou K, Meng C-I, Brittnacher MJ, and Parks G**  
Dynamics of double-theta aurora: Polar UVI study of January 10–11, 1997, *J. Geophys. Res.* **104**(A1), 95–104 (1 Jan 1999).
- Newell PT, Liou K, Wing S, and Meng C-I**  
Ionospheric conductivity and the formation of auroral arcs: A review with an emphasis on solar cycle effects, *Substorms-4*, S Kokubun and Y Kamide (eds.), pp. 41–46 (1998).
- Ohtani S-I, Rostoker G, Takahashi K, Angelopoulos V, Nakamura M, Waters C, Singer H, Kokubun S, Tsuruda K, Hughes WJ, Potemra TA, Zanetti LJ, Gary JB, Lui ATY, and Williams DJ**  
Coordinated ISTP satellite and ground observations of morningside Pc5 waves, *J. Geophys. Res.* **104**(A2), 2381–2397 (1 Feb 1999).
- Oursler DA, Wickenden DK, Zanetti LJ, Kistenmacher TJ, Givens RB, Osiander R, Champion JL, and Lohr DA**  
Development of the Johns Hopkins xylophone bar magnetometer, *Johns Hopkins APL Tech. Dig.* **20**(2), 181–189 (1999).
- Pace DK, and Glasow P (MITRE)**  
SIMVAL 99—Making VV&A effective and affordable, *Phalanx* **32**(1), 22–25 (Mar 1999).
- Pace DK, and Glasow P (MITRE)**  
*Mini-Symposium Report: SIMVAL 99—Making VV&A Effective and Affordable*, The Simulation Validation Workshop 1999, Military Operations Research Society and Society for Computer Simulation (1999).
- Paschalidis NP**  
Microelectronics technologies enabling new generation spacecraft and instrumentation, in *Science Closure and Enabling Technologies for Constellation Class Missions*, The American Geophysical Union, pp. 123–130 (Dec 1998).
- Paschalidis NP, Karadamoglou K, Stamatopoulos N, Paschalidis V, Kottaras G, Sarris E, Keath EP, and McEntire RW**  
An integrated time to digital converter for space instrumentation, in *Proc. 7th NASA Symp. on VLSI Design*, 5.4.1 (Oct 1998).
- Paschalidis NP, Stamatopoulos N, Karadamoglou K, Paschalidis G, Kottaras E, Sarris E, Keath P, and McEntire RW**  
An integrated time of flight system for space instrumentation, in *Proc. 1998 IEEE Nuclear Science Symp. and Medical Imaging Conf.*, Toronto, Canada (Nov 1998).
- Poland DD, Stephens RI (U. of Iowa), and Prucher T (Burgess-Norton Manufact. Co.)**  
Influence of density and sintering temperature on smooth, notched, and cracked variable amplitude fatigue behavior of FL4405 high strength PM steel, *Powder Metallurgy* **41**(4), 274–280 (1998).
- Porch W, Borys R, Durkee P, Gasparovic RF, Hooper W, Hindman E, and Nielsen K**  
Observations of ship tracks from ship-based platforms, *J. App. Meteor.* **38**, 69–81 (Jan 1999).
- Raney RK**  
IGARSS98 Report, *EARSeL Newsletter* **35**, 4–5 (Sep 1998).
- Raney RK**  
The delay/Doppler radar altimeter, *IEEE Trans. Geosci. Remote Sens.* **36**(5), 1578–1588 (Sep 1998).
- Raney RK**  
Into a glass darkly: One scientist's view, *J. Electronic Pub.* **4**(2), <http://www.press.umich.edu/jep/04-02/raney.html> (1 Dec 1998).
- Reilly JP (retired, APL), Klein T, and Ilves H (retired, APL)**  
Design and demonstration of an infrared passive ranger, *Johns Hopkins APL Tech. Dig.* **20**(2), 220–235 (1999).
- Rogers GD, Hunt JW, and Goldfinger AD**  
An HLA-compliant reusable class structure for the simulation of space systems, in *Proc. 1999 Spring Simulation Interoperability Workshop*, 99S-SIW-003 (Mar 1999).
- Rust DM**  
The solar stereo mission in a crossroads for European solar and heliospheric physics, *Proc. ESA Conf.* **SP-417**, 133 (1998).
- Rust DM**  
*Solar flares: In from the Sun*, ST Suess and BT Tsurutan (eds.), American Geophysical Union (1998).

**Saffarian HM, Srinivasan R, Chu D (ARL), and Gilman S (ARL)**  
Area determination in fractal surfaces of Pt and Pt-Ru catalysts for methanol oxidation, *Electrochim. Acta* **44**, 1447–1454 (1998).

**Sergeev VA, Liou K, Meng C-I, Newell PT, Brittnacher M, Parks G, and Reeves GD**  
Development of auroral streamers in association with localized impulsive injections to the inner magnetotail, *Geophys. Res. Lett.* **26**, 417–420 (1 Feb 1999).

**Sibeck DG, Borodkova NL, Schwartz SJ, Owen CJ, Kessel R, Kokubun S, Lepping RP, Lin R, Liou K, Luhr H, McEntire RW, Meng C-I, Mukai T, Nemecek Z, Parks G, Phan TD, Romanov SA, Safrankova J, Sauvaud J-A, Singer HJ, Solov'yev SI, Szabo A, Takahashi K, Williams DJ, Yumoto K, and Zastenker GN**  
Comprehensive study of the magnetospheric response to a hot flow anomaly, *J. Geophys. Res.* **104**(A3), 4577–4594 (1 Mar 1999).

**Sommerer JC**  
Chaotic scattering in a two-dimensional fluid wake, in *Proc. 4th Experimental Chaos Conf.*, Boca Raton, FL, pp. 135–140 (1998).

**Sotirelis TS, and Meng C-I**  
Magnetopause from pressure balance, *J. Geophys. Res.* **104**(A4), 6889–6898 (Apr 1999).

**Spiz TS, Fang Y (JHU School of Medicine), Bankman IN, RH Reeves (JHU School of Medicine), and Hoh JH (JHU School of Medicine)**  
Automated DNA sizing by atomic force microscopy, *Johns Hopkins APL Tech. Dig.* **20**(2), 135–142 (1999).

**Suter JJ**  
Sensor development and application at APL: Guest Editor's introduction, *Johns Hopkins APL Tech. Dig.* **20**(2), 133–134 (1999).

**Terry DH, Thomas ME, Linevsky MJ (General Physics Corp.), and Prendergast DT**  
Imaging pyrometry of laser-heated sapphire, *Johns Hopkins APL Tech. Dig.* **20**(2), 162–169 (1999).

**Uy OM, Cain RP, Carkhuff BG, Cusick RT, and Wood BE (Sverdrup Technol. Inc.)**  
Miniature quartz crystal microbalance for spacecraft and missile applications, *Johns Hopkins APL Tech. Dig.* **20**(2), 199–213 (1999).

## PRESENTATIONS

APL staff were among those who gave the following unclassified presentations:

**Bythrow PF, Oursler DA, Goldfinger AD, Dove RE, Crawford LJ and Meng C-I**  
Visible wavelength sensors for the rapid detection and identification of a ballistic missile launch, *IRIS Specialty Group on Missile Defense Sensors, Environments and Algorithms*, Monterey, CA (26–28 Jan 1999).

**Bythrow PF**  
First alert and cueing, *Presented to Capt. Dave Smith, Deputy Director of the Central MASINT Office*, JHU/APL, Laurel, MD (Feb 1999).

**Bythrow PF**  
First alert and cueing, *Presented to the Technical Advisory Group of the Senate Select Committee on Intelligence*, McLean, VA (Feb 1999).

**Canfield RC, Sterling A, Gibson, S, and Rust DM**  
“S” marks the spot for solar eruptions, Space science update, *NASA Headquarters*, Washington, DC (9 Mar 1999).

**Christian ER, von Rosenvinge TT, Looper MD, Mazur JE, Cohen CM, Cummings AC, Leske RA, Mewaldt RA, Stone EC, Krimigis SM, Wiedenbeck ME, Yanasak N, Dwyer JR, Hamilton DC, Hill ME, Mason GM, Binns WR, and Hink PL**  
Observations of the solar modulation of galactic and anomalous cosmic rays during solar minimum, *American Physical Society Meeting*, APS 99, Atlanta, GA (22–26 Mar 1999).

**Cummings AC, Steenberg CD, Stone EC, Hamilton DC, Hill ME, Decker RB, and Krimigis SM**  
Composition of anomalous cosmic rays, *American Physical Society Meeting*, APS 99, Atlanta, GA (22–26 Mar 1999).

**Dellinger WF**  
Application of MATLAB®/Simulink® to guidance and control flight-code design, *22nd Annual AAS Guidance and Control Conf.*, Breckenridge, CO (3–7 Feb 1999).

**Donohue DJ, Ku H-C, and Thompson DR**  
Polarization dependent radar backscatter calculations from cresting ocean waves, *National Radio Science Meeting (URSI)*, University of Colorado, Boulder (4–8 Jan 1999).

**Farrell RA, and McCally RL**  
Corneal transparency, light scattering and structure, *Through the Looking Glass Macromolecular Morphogenesis Conf.*, Boston, MA (22–23 Jan 1999).

**Guo Y**  
Self-contained autonomous navigation system for deep space missions, *AAS/AIAA Space Flight Mechanics Meeting*, Breckenridge, CO (7–10 Feb 1999).

**Lui ATY, Williams DJ, McEntire RW, Liou K, Newell PT, Meng C-I, Ohtani S-I, Fox NJ, Lepping RP, Paterson WR, Sigwarth JB, Frank LA, Kokubun S, Brittnacher M, and Parks GK**  
Study of an ISTP substorm event, *The Sixth GEOTAIL SWG/Workshop*, Kyoto, Japan (15–18 Mar 1999).

**Maryak JL, and Chin DC**  
Efficient global optimization using SPSA, *33rd Annual Conf. on Information Sciences and Systems*, Baltimore, MD (17–19 Mar 1999).

**McCally RL, and Farrell RA**  
Relationships between corneal structure and the scattering and propagation of polarized light, *Through the Looking Glass Macromolecular Morphogenesis Conf.*, Boston, MA (22–23 Jan 1999).

**McNutt RL**  
A realistic interstellar explorer, *NASA Institute for Advanced Concepts (NIAC)*, NASA/HQ, Washington, DC (25–26 Mar 1999).

**Paranicas CP, Paterson WR, Frank LA, Cheng AF, McEntire RW, and Williams DJ**  
Electromagnetics of Europa and Ganymede, *California Institute of Technology, Space Radiation Laboratory*, Pasadena, CA (4 Mar 1999). (Invited)

**Raney RK**  
Comments on the delay Doppler angle-measuring (DDA) advanced radar altimeter, *Office of the Oceanographer of the Navy*, Washington, DC (15 Jan 1999).

**Rust DM**  
STEREO Project Status, *Presented to NASA Associate Administrator*, JHU/APL, Laurel, MD (7 Jan 1999).

**Rust DM**  
Solar prominences: An overview of observations, *Solar Theory Mini-Workshop*, Princeton Plasma Physics Laboratory, Princeton, NJ (8 Mar 1999).

**Rust DM**  
Kinky signatures of solar mass ejections, *Spring Meeting of the Washington Area Astronomers, Space Science Telescope Institute*, Baltimore, MD (15 Mar 1999).

**Spall JC**

Adaptive stochastic approximation by the simultaneous perturbation method, *33rd Annual Conf. on Information Sciences and Systems*, Baltimore, MD (17–19 Mar 1999).

**Strikwerda TE**

NEAR mission: G&C system performance & update, *SAE Aerospace Control & Guidance Systems Committee Meeting*, Salt Lake City, UT (10–12 Mar 1999).

**Thomas ME, Erlandson RE, Terry DH, Swaminathan PK, Hunter LW, Mayr MJ, Taylor JC, Kumar CK, and Hershberger RL**

Analysis of high speed optical data from HE warhead fragment-target interactions, *1999 Meeting of the IRIS Specialty Group on Missile Defense Sensors, Environments, and Algorithms (MD-SEA)*, Tuscon, AZ (27–29 Jan 1999).

**Thompson DR**

High resolution wind field extraction from synthetic aperture radar (SAR), *JHU/APL SAR Symp.*, Laurel, MD (23–25 Mar 1999).

**Thompson DR, Elfouhaily TM, Vandemark D, and Chapron B**

An extended bistatic model for EM scattering from perfectly conducted random surfaces, *National Radio Science Meeting (URSI)*, University of Colorado, Boulder (4–8 Jan 1999).

The following papers were presented at the 1999 Chapman Conf. on Magnetospheric Current Systems, Kona, HI (11–15 Jan 1999):

**Anderson BJ, Takahashi K, and Brockmeier G**

Observation of field-aligned currents using the IRIDIUM satellites.

**Lui ATY**

Is current disruption in the magnetotail a self-organized criticality phenomenon?

**Ohtani S-I, and Higuchi T**

Disappearance of large-scale field-aligned current systems.

**Sotirelis TS, Meng C-I, Boardsen SA, and Eastman TE**

Magnetopause shape as a function of dipole tilt angle.

**Wing SP, and Newell PT**

Birkeland currents determined from 2-D magnetotail pressure profiles.

The following papers were presented at the 30th Lunar Planetary Science Conf., Houston, TX (15–19 Mar 1999):

**Barnouin-Jha O, and Cheng AF**

The spatial variation of impact flux on asteroids [#1837].

**Brinckerhoff WB, Managadze GG, McEntire RW, and Cheng AF**

Characterization of planetary surfaces with *in-situ* laser mass spectrometry [#1752].

**Cheng AF**

Overview of NEAR's flyby of EROS.

**Merline WJ, Chapman CR, Colwell WB, Veverka J, Harch A, Bell M, Bell JF, Thomas P, Clark BE, Martin P, Murchie SL, Cheng AF, Domingue DL, and Izenberg N**

Search for satellites around asteroid 433 Eros from NEAR flyby imaging.

**Murchie SL**

NEAR spectroscopic results at EROS.

**Pieters C, Calvin W, Cheng AF, Clark B, Clemett S, Gold RE, McKay D, Murchie SL, Mustard J, Papike J, Schultz P, Thomas P, Tuzzolino A, Yeomans D, Yoder C, Zolensky M, Barnouin-Jha OS, and Domingue DL**

Aladdin: Exploration and sample return of Phobos and Deimos [#1155].

**Vilas F, Domingue DL, Jensen EA, McFadden LA, Coombs CR, and Mendell WW**

Aqueous alteration on the Moon [#1343].

The following papers were presented at the IEEE Aerospace Conf., Snowmass, CO (8–12 Mar 1999):

**Barnouin-Jha OS**

Aladdin: Sample return from the moons of Mars.

**Jensen JR and Bokulic RS**

Accurate Doppler navigation with a simple spacecraft transceiver.

**Reynolds EL, Chiu MC, Farquhar RW, and Dunham DW**

The CONTOUR Discovery Mission.

The following papers were presented at the Spring 1999 Simulation Interoperability Workshop, Orlando, FL (14–19 Mar 1999):

**Biondo AC, Mandelberg MD, Newman FC, and Matthews C (NAWCTSD)**

Model-dependent environmental abstractions (MDEAs) of acoustic transmission loss to support synthetic force development.

**Rogers GD, Hunt JW, and Goldfinger AD**

An HLA-compliant reusable class structure for the simulation of space systems.

**Zouck JH, Krummenoehl AF, Jacobs ETA, Spaur BM, Gettier RC, and Lindberg JS**

Porting real time tactical code to construct an HLA federate.

## COLLOQUIA

The following topics were recently presented at the weekly APL Colloquium:

**9 April 1999**

Design of Highway Noise Barriers, IJ Busch-Vishniac, JHU Whiting School of Engineering

**16 April 1999**

Killer Impacts: Effect of Impact Angle, P Schultz, Brown University

**23 April 1999**

Intelligent Synthesis Environment, SL Venneri, NASA

**30 April 1999**

Optical Lattices: A New Solid State? SL Rolston, NIST

**7 May 1999**

Improving Vehicle Safety, JW Melvin, Tandelata, Inc.

**14 May 1999**

Signal Processing for Target Imaging, JA Simmons, Brown University

**19 May 1999**

Corporate Creativity: World-Class Idea Systems, AG Robinson, University of Massachusetts

**21 May 1999**

Mars: A Perspective from the Pathfinder, SL Murchie, JHU/APL